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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,678	08/31/2001	Atsushi Yamaguchi	110533	9275

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EXAMINER
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UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/942,678

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Nikolas J. Uhlir

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 2-4 and 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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### DETAILED ACTION

1. This office action is in response to the request for continued examination (RCE) dated 11/03/03. Currently, claims 1-8 are pending, with claims 2-4 and 6-8 withdrawn from consideration. Applicants amendment dated 09/30/03 has been entered and has been considered by the examiner.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.


3. Claims 1 and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, claims 1 and 5 require a CoFeNi alloy containing "at least 10 weight % iron but less than 20 weight % iron." Each time the applicant discusses the composition of the CoFeNi alloy in the instant specification, the applicant states that the film contains "10 to 20 weight % iron." The range in the specification is inclusive of 20 weight % Fe, whereas the amended range specifically excludes this endpoint. There is no support in the instant specification for the specific exclusion of 20 weight % Fe as a suitable endpoint for the amount of Iron in the film. Thus, the exclusion of 20 weight % Fe from the range is new matter. Correction is required.

***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being unpatentable over Osaka et al. (US6120918).

6. Claim 1 requires a cobalt-nickel-iron (hereafter CoNiFe) thin film containing 60-75% by weight cobalt, 10-20% by weight nickel, and at least 10 weight % but less than 20 weight % iron, wherein the thin film has a crystal structure that is a mixture of bcc and fcc phases, wherein  $I_b/I_f$  is in the range of 0.3-0.7 inclusive, where  $I_b$  represents the intensity of an X-ray diffracted from a (110) plane of the bcc phase, and  $I_f$  represents the intensity of an X-ray diffracted from a (111) plane of the fcc phase.

7. With respect to these limitations, Osaka et al. (hereafter Osaka) teaches a CoFeNi thin film that comprises 40-70% by weight cobalt, 20-40% by weight Fe, and 10-20% by weight Ni, wherein the magnetic thin film comprises a mixture of fcc and bcc crystal structures (column 2, lines 17-14). In a specific embodiment, Osaka teaches films that that comprises around 20 weight % Fe, 65% by weight Co, and 10% by weight Ni, said film exhibiting a mixture of fcc and bcc crystal structures (figure 6). The specific example referred to by the examiner is represented by a  symbol, and is located such that the circle overlaps the line delineating 20 weight % Fe. As this example clearly overlaps less than 20 weight % Fe, it is clear that at least one example of Osaka anticipates the applicants claimed composition. While it is acknowledged that Osaka

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does not explicitly teach the applicants required  $I_b/I_f$  ratio, the examiner takes the position that the x-ray diffraction properties (which  $I_b$  and  $I_f$  represent) are met by Osaka. The applicants are directed to Tables 2 and 3 in Osaka, wherein the composition of the plating bath utilized to form the CoNiFe films is detailed, particularly the point wherein Osaka details that the pH of the plating baths utilized to form the CoNiFe is shown to be 2.8 and 2.5 respectfully. The examiner notes that figure 14 of the instant specification discloses that the  $I_b/I_f$  ratio of a CoFeNi film is dependent on the pH of the plating bath used to deposit the film. Specifically, figure 14 shows that CoNiFe films having the recited composition that are formed from plating baths having a pH between 2.4 and 3.6 exhibit  $I_b/I_f$  ratios within the applicants claimed range. Thus, as the plating baths of Osaka that are utilized to form the CoNiFe films have a pH in this range, and at least one example of Osaka meets the claimed composition, the examiner takes the position that at least one of the CoNiFe films taught by Osaka will necessarily meet the applicants claimed  $I_b/I_f$  ratio.

8. Regarding the limitations of claim 5, wherein the applicant requires a magnetic head having a specific structure. Figure 5 and column 4, lines 47-64 of Osaka detail a magnetic head incorporating a CoFeNi film that meets all of the applicants claim 5 limitations. The  $I_b/I_f$  ratio is met as set forth above for claim 1.

### ***Response to Arguments***

9. Applicant's arguments filed 9/30/03 (paper #10) have been fully considered but they are not persuasive.

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10. The examiner has carefully considered the applicant's arguments with respect to the 102(e) rejection of claims 1 and 5 over Osaka. Applicant's have specifically argued three points. In their first argument, applicants assert that Osaka does not teach the claimed film composition (see arguments, page 5, paragraph 5). This argument is unpersuasive for two reasons: 1) it is directed towards a limitation that is new matter; and 2) the examiner has clearly shown that Osaka teaches at least one example that utilize ~20 weight % Fe, inclusive of samples that utilize <20 weight % Fe but  $\geq 10$  weight % Fe.

11. For their second argument, applicants argue that the films of Osaka containing <20 weight % Fe have an FCC crystal structure as opposed to a mixture of FCC and BCC crystal structure. The examiner respectfully disagrees. While many of the examples containing <20 weight % Fe taught by Osaka have only an FCC crystal structure, the particular example referred to by the examiner clearly overlaps the line delineating 20 weight % Fe, and is has a mixture of FCC and BCC crystal structure (see figure 6 legend).

12. For their third and final argument, the applicant's opine that the  $I_b/I_f$  ratio is not taught by Osaka, and assert that even if the composition of CoFeNi film of Osaka is the same as that of the cited prior art, the applicant has shown that the  $I_b/I_f$  ratio is controlled by controlling the pH of the deposition bath used to deposit the film. Thus, the  $I_b/I_f$  ratio is not necessarily the same simply because the Osaka reference may teach the same alloy composition.

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13. This argument is unpersuasive. The applicants have correctly cited in their argument that the  $I_b/I_f$  ratio is dependent on pH. This fact is clearly shown by figure 14 of the instant specification. In particular, figure 14 clearly shows that CoNiFe films having the claimed composition that are formed from plating baths having a pH between 2.4 and 3.6 exhibit  $I_b/I_f$  ratios within the applicants claimed range. However, Osaka also utilizes plating baths to form CoNiFe films, and teaches at least one example that anticipates the applicant's claimed composition. Further, the plating baths utilized by Osaka to deposit the CoNiFe films have a pH of 2.5 (see table 3), which is within the range stated above. Thus, in lieu of the fact that at least one example of Osaka anticipates the claimed composition and is formed from a plating bath that is known to result in the claimed  $I_b/I_f$  ratio, the examiner maintains that at least one of the CoNiFe films taught by Osaka will necessarily meet the claim  $I_b/I_f$  limitation.


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhler whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

NDU  
11/26/05

  
Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700